

CLAIMS

1. A sandwich material comprising two metal plates which are affixed to and separated by a fibrous core, characterised in that the core comprises a three-dimensional porous network comprising metal fibres, wherein substantially all of the fibres are inclined at an acute angle ( $\theta$ ) to the plates.

2. A sandwich material according to claim 1, wherein the metal fibres are bonded together at crossover points within the network.

3. A sandwich material according to claim 1 or claim 2, wherein the metal plates and the metal fibres comprise metals independently selected from stainless steel, steel, aluminium and titanium.

4. A sandwich material according to claim 3, wherein the metal plates and the metal fibres comprise stainless steel or aluminium.

5. A sandwich material according to any preceding claim, wherein the plates are affixed to the fibrous core by means of a braze.

6. A sandwich material according to any of claims 1 to 4, wherein the plates are affixed to the fibrous core by means of an adhesive.

7. A sandwich material according to any preceding claim, wherein the fibres in the core are randomly orientated.

8. A sandwich material according to any preceding claim, wherein  $\theta$  is less than  $60^\circ$ .

9. A sandwich material according to any preceding claim, wherein the average diameter of the fibres is less than 500  $\mu\text{m}$ .

10. A sandwich material according to any preceding claim, wherein the total thickness of the material is 0.5mm - 1 cm.

11. A sandwich material according to any preceding claim, wherein the fibres occupy 5-50 volume% of the core.

12. A sandwich material according to claim 11, wherein the fibres occupy 5-10 volume % of the core.

13. A sandwich material according to any preceding claim, wherein the core additionally comprises non-metallic fibres.

5 14. A sandwich material according to any preceding claim, wherein the fibrous core additionally comprises a polymer matrix.

10 15. A process for the preparation of a sandwich material as defined in any of claims 1 to 14, comprising the step of affixing two metal plates to either side of a fibrous core.

16. A welded material comprising a sandwich material as defined in any of claims 1 to 14 welded to a substrate.

17. A vehicle part comprising a sandwich material as defined in any of claims 1 to 14.

15 18. A vehicle part according to claim 17, which is selected from spoilers, panels and roofs.

19. A vehicle comprising a vehicle part as defined in claim 17 or claim 18.

*Ref A4*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100